

WHAT IS CLAIMED IS:

1. An electron-emitting apparatus comprising:  
an electron-emitting device including a first  
electrode, a second electrode that is provided so as to  
5 be insulated from the first electrode, and an electron-  
emitting film connected to the second electrode; and  
an anode provided at a predetermined distance from  
the electron-emitting film,  
wherein the first electrode, the second electrode,  
10 and the electron-emitting film oppose the anode,  
a distance between the anode and the electron-  
emitting film is longer than a distance between the  
anode and the second electrode, and  
a distance between the anode and the first  
15 electrode is longer than the distance between the anode  
and the electron-emitting film.
2. An electron-emitting apparatus according to  
Claim 1 further comprising a first voltage applying  
20 means for applying, to the anode, a potential that is  
higher than potentials applied to the first electrode  
and the second electrode.
3. An electron-emitting apparatus according to  
25 Claim 1 further comprising a second voltage applying  
means for applying a voltage between the first  
electrode and the second electrode.

4. An electron-emitting apparatus according to  
Claim 3,

wherein when electrons are emitted from the  
electron-emitting film, a potential applied to the  
5 first electrode is set so as to be at least equal to a  
potential applied to the second electrode.

5. An electron-emitting apparatus according to  
Claim 3,

10 wherein when no electrons are emitted from the  
electron-emitting film, a potential applied to the  
first electrode is set so as to be below a potential  
applied to the second electrode.

15 6. An electron-emitting apparatus according to  
Claim 1,

wherein the electron-emitting film includes carbon  
or a carbon compound.

20 7. An electron-emitting apparatus according to  
Claim 6,

wherein said carbon or said carbon compound  
includes at least one of diamond like carbon, graphite,  
diamond, a carbon nanotube, a graphitic nanofiber, and  
25 fullerene.

8. An electron source that is formed by arranging

a plurality of electron-emitting apparatuses of any one of claims 1 to 7 and emits electrons from at least one of the plurality of electron-emitting apparatuses according to an input signal.

5

9. An image-forming apparatus comprising:  
the electron source of Claim 8; and  
an image forming member on which an image is formed by irradiation with electrons emitted from the  
10 electron source.

10. An electron-emitting device comprising:  
a first electrode arranged on a surface of a substrate;  
15 an insulating layer arranged on the first electrode;  
a second electrode arranged on the insulating layer; and  
an electron-emitting film arranged on the second  
20 electrode,

wherein the second electrode has two side surfaces that oppose each other in a direction substantially parallel to the surface of the substrate, and the electron-emitting film is arranged so as to be shifted  
25 close to one of the two side surfaces.

11. An electron-emitting device according to

Claim 10,

wherein the electron-emitting film is an aggregate of fibers whose main ingredients are carbon.

5           12. An electron-emitting device according to Claim 11,

wherein each fiber whose main ingredient is carbon is one of a carbon nanotube and a graphite nanofiber.

10           13. An electron-emitting device according to Claim 11,

wherein each fiber whose main ingredient is carbon includes a graphene.

15           14. An electron-emitting device according to Claim 11,

wherein each fiber whose main ingredient is carbon includes a plurality of graphenes.

20           15. An electron-emitting device according to Claim 14,

wherein the plurality of graphenes are laminated in an axial direction of the fiber.

25           16. An electron-emitting device according to Claim 11,

wherein electrons are emitted from the electron-

emitting film when a potential applied to the first electrode is set so as to be at least equal to a potential applied to the second electrode.

5           17. An electron-emitting device according to Claim 11,

          wherein no electrons are emitted from the electron-emitting film when a potential applied to the first electrode is set so as to be below a potential  
10           applied to the second electrode.

          18. An electron source in which are arranged a plurality of electron-emitting devices of any one of claims 11 to 17.

15           19. An image-forming apparatus comprising:  
          the electron source of Claim 18; and  
          a phosphor.